

DII.3003.IRIX62.Kernel.VDD-1

Defense Information Infrastructure (DII)

Common Operating Environment (COE)

Version 3.0.0.3

Version Description Document for the Kernel (IRIX 6.2)

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NOTE: Courier font is used to indicate entries to be typed at the keyboard, operating system commands, file and directory names, and screen text. For example:

The file is located in the `DII_DEV` directory.

1. System Overview

The Defense Information Infrastructure (DII) Common Operating Environment (COE) will normally make available a large number of segments, not all of which are required for every application. The DII COE Kernel is the minimum set of software required on every workstation regardless of how the workstation will be used. These components include the operating system and windowing services, as well as external environment interfaces. The DII COE Kernel for IRIX 6.2 includes the following components:

- C IRIX 6.2 Operating System (installed before the DII COE Kernel)
- C System Administration function
- C Security Administration function (including Accounts and Profiles)
- C Runtime tools
- C Commercial Off-the-Shelf (COTS) software [including desktop graphical user interface (GUI) and windowing environment]
- C Government Off-the-Shelf (GOTS) software.

These components can be broken down into the following features:

Operating System

IRIX 6.2 Operating System. Reference the *DII COE Kernel Installation Guide (IRIX 6.2)* for information about installing the IRIX 6.2 Operating System.

System Administration Function

The System Administration function is used to provide the capability to print ASCII text, select and configure printers, perform local queue management, manage print jobs, and close windows; reboot or shut down the system, mount file systems, and format hard drives; load or install segments; and change machine ID, set system time, configure a workstation as either a DNS client or a server, set routing configuration, and configure Network Information Service (NIS). The system administrator's account group sets the system administrator's environment to execute the functions listed above. Reference the *DII COE System Administrator's Guide (HP-UX 10.20 and Solaris 2.5.1)* for more information about system administration functionality.

Security Administration Function

The Security Manager Administration function provides the ability for authorized users to create, delete, and maintain user accounts and UNIX groups, as well as to define *profiles*, which provide users with easy access to the executables and icons they need to perform their duties. (Profiles provide a mechanism by which a security administrator can group sets of users, often by their job responsibilities, to appropriate applications.) Refer to the *DII Security Manager's Guide* for more information about security administration functionality.

Runtime Tools

Runtime tools are used to support the segment installation process. The following runtime tools are included on the DII COE 3.0.0.3 Kernel tape. Some of the tools can be run from the command line, and some can be run from other code using published Application Programmer Interfaces (APIs). The COEInstaller tool can also be run from the System Administration pull-down menu. Reference the *DII COE Programming Guide (IRIX 6.2)*, the *DII COE API Reference Guide (IRIX 6.2)*, and the *DII COE Integration and Runtime Specification* for more information about these tools and their functionality.

- C **COEAskUser** Version 1.0.0.6—Displays a message to the user and expects the user to choose one of two buttons in response. The COEAskUser tool can be called from anywhere.
- C **COEFindSeg** Version 1.0.0.6—Returns information about a requested segment.
- C **COEInstaller** Version 1.0.0.9—Displays a list of segments that may be installed from tape, disk, or other electronic media. The COEInstaller tool can be run from the command line, as well as from the System Administration pull-down menu.
- C **COEInstError** Version 1.0.0.6—Displays an error message to the user. It can be run from the command line, but it is most often called from within a `PreInstall`, `PostInstall`, or `DEINSTALL` script.
- C **COEMsg** Version 1.0.0.6—Displays a message to the user from within a `PreInstall`, `PostInstall`, or `DEINSTALL` script.
- C **COEPrompt** Version 1.0.0.6—Displays a message to the user and expects the user to enter a response from within a `PreInstall`, `PostInstall`, or `DEINSTALL` script.
- C **COEPromptPasswd** Version 1.0.0.6—Displays a message to the user and waits for the user to enter a password. The COEPromptPasswd tool can be run from the command line, but it is most often called from within a `PreInstall` or `PostInstall` script.
- C **COEUpdateHome** Version 1.0.0.4—Updates the home environment within a script file to point to where a segment actually was installed.

COTS Software

The following COTS software helps to provide the foundation of the DII COE software environment:

- C **X Windows** (Version X11R6)
- C **Motif** (Version 1.2.4)
- C **Triteal Enterprise Desktop (TED) Common Desktop Environment (CDE)** (Version 4.2)—provides windows, workspaces, controls, indicators, and a front panel to help users organize and manage work.

2. Referenced Documents

The following documents are referenced in this version description document (VDD):

- C *Defense Information Infrastructure (DII) Common Operating Environment (COE) Version 3.0.0.3 Kernel Installation Guide (IRIX 6.2)*, DII.3003.IRIX62.IG-1, Inter-National Research Institute (INRI), October 14, 1997
- C *Defense Information Infrastructure (DII) Common Operating Environment (COE) Version 3.1 System Administrator's Guide (HP-UX 10.20 and Solaris 2.5.1)*, DII.31.HPSOL.AG-1, Inter-National Research Institute (INRI), April 14, 1997
- C *Defense Information Infrastructure (DII) Common Operating Environment (COE) Version 3.1 Security Manager's Guide*, DII.31.HPSOL.SMG-1, Inter-National Research Institute (INRI), April 14, 1997
- C *Defense Information Infrastructure (DII) Common Operating Environment (COE) Version 3.0.0.3 Programming Guide (IRIX 6.2)*, DII.3003.IRIX62.PG-1, Inter-National Research Institute (INRI), October 14, 1997
- C *Defense Information Infrastructure (DII) Common Operating Environment (COE) Version 3.0.0.3 Application Programmer Interface (API) Reference Guide (IRIX 6.2)*, DII.3003.IRIX62.RG-1, Inter-National Research Institute (INRI), October 14, 1997
- C *Defense Information Infrastructure (DII) Common Operating Environment (COE) Integration and Runtime Specification Version 2.0*, DII COE I&RTS:Rev 2.0, Inter-National Research Institute (INRI), October 23, 1995.

3. Version Description

3.1 Inventory of Materials Released

- C Magnetic media: Two 4mm DATs consisting of the DII COE Kernel in `inst` format, Version 3.0.0.3 (IRIX 6.2).
- C Soft-copy Documentation: One 3.5" floppy diskette (WordPerfect 6.0 for Windows format) containing the *Defense Information Infrastructure (DII) Common Operating Environment (COE) Version 3.0.0.3 Version Description Document for the Kernel (IRIX 6.2)*, Document Control No. DII.3003.IRIX62.Kernel.VDD-1, October 14, 1997.
- C Hard-copy Documentation: Two hard copies of the aforementioned VDD.

3.2 Software Changes

This delivery provides a Security Administration capability with Accounts and Profiles software. Refer to the following table for a list of other software changes for the DII COE Version 3.0.0.3 Kernel (IRIX 6.2). The software changes are listed in order of INRI Number.

DII COE Version 3.0.0.3 Kernel (IRIX 6.2) Software Changes	
Total Software Changes: [5]	
INRI Number:	RTO00001561
Agency Number:	None.
Short Description:	During kernel installation, the user cannot press the space bar when told to "Press any key to continue".
Long Description:	During kernel installation, the following message appears: "System will now reboot, Press any key to continue". The space bar, however, does not allow the installation to continue; therefore, the statement "any key" is not true. Pressing the [Return] key allows the installation to continue; however, further testing may be required to determine if other keys work.
INRI Number:	RTO00001566
Agency Number:	None.
Short Description:	The system cannot be shutdown using the Shutdown System pull-down menu option.
Long Description:	The system cannot be shutdown using the Shutdown System pull-down menu option. The system can, however, be rebooted using the Reboot System pull-down menu option.

DII COE Version 3.0.0.3 Kernel (IRIX 6.2) Software Changes	
INRI Number:	RTO00001590
Agency Number:	None.
Short Description:	Segments cannot be installed from the Segment Installation Server.
Long Description:	Segments cannot be installed from the Segment Installation Server. Segments are not loading onto the Segment Installation Server correctly and, therefore, the Installer's NETWORK option is not functional. The problem could be related to the fact that the tar files within the segment have a size of zero.
INRI Number:	RTO00001593
Agency Number:	None.
Short Description:	The ypserv process is running on a NIS client.
Long Description:	The ypserv process is running on a NIS client. Only the ypbind process should be running on the client. Despite the fact that the ypserv process is running, the client appears to still bind appropriately to the server (e.g., the ypcat passwd shows entries for the NIS master).
INRI Number:	RTO00001599
Agency Number:	None.
Short Description:	In the Disk Manager window on SGI, the INITFD button is grayed out and unavailable.
Long Description:	In the Disk Manager window on SGI, the INITFD button is grayed out and unavailable.

3.3 Waivers

For system administration and security administration information, users should reference the *DII COE Version 3.1 System Administrator's Guide (HP-UX 10.20 and Solaris 2.5.1)*, and the *DII COE Version 3.1 Security Manager's Guide*. Waivers have been approved for not redelivering these manuals specifically for SGI since the actual content is unchanged for the SGI build.

4. Installation Instructions

Reference the *DII COE Kernel Installation Guide (IRIX 6.2)* for instructions on installing the DII COE Kernel.

5. Known Problems and Errors

5.1 DII COE Kernel Known Problems and Errors

Reference the following sections for known problems and errors with the DII COE Version 3.0.0.3 Kernel (IRIX 6.2). Section 5.1.1 contains previously reported known problems and errors. Section 5.1.2 contains unreported known problems and errors.

5.1.1 Previously Reported Known Problems and Errors

Reference the following table for known problems and errors reported with the DII COE Version 3.0/B release. These problems are listed in order of INRI Number.

DII COE Version 3.0.0.3 Kernel (IRIX 6.2) Known Problems and Errors	
Total Open Known Problems and Errors: [19]	
INRI Number:	RTO00001409
Agency Number:	None.
Short Description:	The Installation Log gives conflicting messages when deinstalling multiple patches.
Long Description:	The COEInstaller successfully deinstalls two patches selected together for deinstallation (e.g., BRAVO.P1 and TestSeg.P3), but the Installation Log gives conflicting messages: "(E) Could not unlink /h/BRAVO/Patches/h/BRAVO/Patches/P1 Segment (TestSegment BRAVO.P1) successfully deinstalled. Segment (TestSegment BRAVO) successfully deinstalled."
INRI Number:	RTO00001559
Agency Number:	None.
Short Description:	When patches and their affected segments are deinstalled, deinstallation does not seem complete.
Long Description:	When patches and their affected segments are deinstalled, deinstallation does not seem complete. The directory structure of <affected segment>/Patches remains intact, although the directories contain only dot files. The name of the affected segment and the Patches directory structure should be removed during the deinstallation process.

DII COE Version 3.0.0.3 Kernel (IRIX 6.2) Known Problems and Errors

INRI Number: RTO00001560

Agency Number: None.

Short Description:

The COEInstaller displays an error message stating it is unable to read the VERSION descriptor when installing segments.

Long Description:

The COEInstaller displays an error message stating that it is unable to read the VERSION descriptor when installing segments. Although the permissions are correct, the ownerships are inconsistent. The message also should indicate which segment it is failing on during installation.

INRI Number: RTO00001563

Agency Number: None.

Short Description:

During power up, the system hung while trying to mount a directory from another workstation (which was down).

Long Description:

During power up, the system hung while trying to mount a directory from another workstation (which was down). The following message appeared: "Port mapper failure - timed out." Despite this timeout message, however, the system continues to hang, as shown by the following message: "mount retrying /h/data/global." The system should time out and start up without mounting this directory.

INRI Number: RTO00001564

Agency Number: None.

Short Description:

The Disk Manager will hang whenever it is started and a file system which it is mounted on another system is not available.

Long Description:

The Disk Manager will hang whenever it is started and a file system which it is mounted on is not available (i.e., when the remote system is powered off or the file system has been removed).

DII COE Version 3.0.0.3 Kernel (IRIX 6.2) Known Problems and Errors	
INRI Number:	RTO00001583
Agency Number:	None.
Short Description:	The audit file fills up quickly and immediately shuts down to single user mode.
Long Description:	During deinstallation of several segments, the system automatically shuts down to single user mode. Another workstation that was remotely logged in at the time received the following message: "BROADCAST MESSAGE: from ROOT (???) ... Warning: All audit output paths full - system going down in 10 seconds." Note: The system had been loaded that same morning, so the audit log should not have taken up that much space yet.
INRI Number:	RTO00001584
Agency Number:	None.
Short Description:	COEPrintServ was running twice before any print actions or printers were configured.
Long Description:	COEPrintServ was running twice before any print actions or printers were configured. (Note that this problem is not repeatable on demand but has been noted several times on several different workstations.)
INRI Number:	RTO00001585
Agency Number:	None.
Short Description:	Windows that are open when the user exits the root account are still open the next time the user logs in to root.
Long Description:	Windows that are open when the user exits the root account are still open the next time the user logs in to root. (Note: Any terminal emulator windows that remain open no longer have the information that was recorded during the first login session.) All windows should exit at user account exit.
INRI Number:	RTO00001586
Agency Number:	None.
Short Description:	The Mailer control on the CDE Front Panel does not work.
Long Description:	The Mailer control on the CDE Front Panel does not work. An error message indicates, "Mailer has not been properly installed, and cannot run because the execution group is incorrectly set."

DII COE Version 3.0.0.3 Kernel (IRIX 6.2) Known Problems and Errors

INRI Number: RTO00001587

Agency Number: None.

Short Description:

The CHANGE MACHINE ID window is missing field labels and has overlapping host name and IP address entry fields.

Long Description:

The CHANGE MACHINE ID window is missing the NEW MACHINE NAME and NEW MACHINE ADDRESS labels. In addition, the window has overlapping host name and IP address entry fields. Resizing the window does not correct the problem. Note: The user can still perform functions if he or she is familiar with using the CHANGE MACHINE ID window.

INRI Number: RTO00001588

Agency Number: None.

Short Description:

The Set Routes option does not actually change the route until the system is rebooted.

Long Description:

The Set Routes option does not actually change the route until the system is rebooted. The user must reboot the system, even though no message appears to inform the user that a reboot is required. (Note: The system should not need to be rebooted.)

INRI Number: RTO00001589

Agency Number: None.

Short Description:

Buttons in the CHANGE MACHINE ID window disappear when the window is resized larger.

Long Description:

Buttons in the CHANGE MACHINE ID window disappear when the window is resized larger.

INRI Number: RTO00001591

Agency Number: None.

Short Description:

Adding a new host that is not on the DNS server causes the Change Machine ID and Edit Local Hosts options to become inoperable.

Long Description:

With DNS configured, adding a new host (via Edit Local Hosts) that is not on the DNS server causes both the Change Machine ID and Edit Local Hosts options to become inoperable (i.e., they can no longer be selected but are not grayed out in the pull-down menu). As a result, the user must manually modify the /etc/hosts file to remove the offending entry. (Note: The problem occurs when adding both trusted and nontrusted hosts.)

DII COE Version 3.0.0.3 Kernel (IRIX 6.2) Known Problems and Errors

INRI Number: RTO00001592

Agency Number: None.

Short Description:

Trusted hosts cannot be added on a NIS master.

Long Description:

Trusted hosts cannot be added to a NIS master, even though user selects the TRUSTED MACHINE box in the ADD MACHINE or EDIT MACHINE window, the host is added (or remains) untrusted. Trusted systems can only be added when NIS is disabled. Note that the systems attempted to be made trusted on listed in /.rhosts, but the remote user still must enter password to remote log in to the NIS master.

INRI Number: RTO00001594

Agency Number: None.

Short Description:

The Remove NIS option does not indicate when NIS has not already been configured.

Long Description:

If NIS is not configured and the Remove NIS option is selected, the option does not indicate that NIS is not enabled. Instead, it continues the man-machine interface (MMI) asking the user to confirm NIS removal.

INRI Number: RTO00001595

Agency Number: None.

Short Description:

NIS window fields are cut off and are hard to read.

Long Description:

NIS window fields (e.g., NIS domain name field and master hostname field) are cut off at the bottom so the data entered is hard to read and confirm.

INRI Number: RTO00001596

Agency Number: None.

Short Description:

The VERSION file for the XWindows COTS Segment is incorrect.

Long Description:

The VERSION file for XWindows contains X11R5, when the actual version should be X11R6.

DII COE Version 3.0.0.3 Kernel (IRIX 6.2) Known Problems and Errors

INRI Number: RTO00001597

Agency Number: None.

Short Description:

The System Time window is not correctly sized.

Long Description:

The System Time window is not correctly sized, which makes it difficult for the user to inspect the time.

INRI Number: RTO00001598

Agency Number: None.

Short Description:

SGI Disk Manager: Selecting ro=client or rw=client from the Options pop-up in the Export/Unexport File System window does not work.

Long Description:

In the Export/Unexport File System window on SGI, selecting ro=client or rw=client from the Options pop-up menu does not properly set permissions; therefore, the user must manually type in the Options field any permission specific to a client. If selected from the pop-up menu, the permission appears in the Options field with garbage (specifically, "?\`mn") before the permission setting. If the user does not remove this garbage and then exports the filesystem, the exported filesystem does not show up in the Current window but instead is added to the /etc/exports file with garbage preceding the permissions setting: "-?\`mnrw={workstation name}."

This /etc/exports line should read: "-rw={workstation name}."

Workaround: The user must manually enter rw={w/s name} or ro={w/s name} in the Options field of the Export/Unexport File System window in order to use that permission. Note: If DNS is configured, then the domain suffix must be appended to the workstation name.

5.1.2 Unreported Known Problems and Errors

Reference the following table for a list of known problems and errors with the DII COE Version 3.0.0.3 Kernel (IRIX 6.2). These problems are listed in order of INRI Number.

DII COE Version 3.0.0.3 Kernel (IRIX 6.2) Known Problems and Errors	
Total Open Known Problems and Errors: [2]	
INRI Number:	RTO00002022
Agency Number:	None.
Short Description:	Remove NIS option does not test to see if NIS is actually running.
Long Description:	When the NETWORK > SERVERS> SET NIS > REMOVE NIS option is selected but NIS is not currently enabled, the option continues as if NIS had been enabled. Recommend that the option perform a check prior to 'disabling' NIS, especially since the option informs the user to reboot the machine.
INRI Number:	RTO00002065
Agency Number:	None.
Short Description:	DNS Setup configuration window displays no buttons by default.
Long Description:	When the Network > Servers > Set DNS option is selected, the window that is displayed shows no OK or CANCEL buttons. Since the window contains no popup menu options, the user is provided no button for exiting the window and configuring DNS. The user must resize the window in order to see the buttons.

5.2 DII COE Kernel COTS and GOTS Known Problems and Errors

Reference the following table for a list of known problems and errors with the DII COE Version 3.0.0.3 Kernel (IRIX 6.2). These problems are listed in order of INRI Number.

DII COE Version 3.0.0.3 Kernel (IRIX 6.2) COTS and GOTS Known Problems and Errors	
Total Open Known Problems and Errors: [1]	
INRI Number:	RTO30000180
Agency Number:	None.
Short Description:	Global users not available on the Client NIS machine.
Long Description:	After successfully configuring NIS for both the Server and a Client and successfully mounting /h/USERS/global from the Server, the client machine still does not have access to the Global users. Furthermore, attempts to login as a global user result in the machine progressing to an unusable state (the screen turns blue but no information is available). In order to remedy this failure either the machine must be powered down, or a user on another machine must be perform a remote login and initiate a reboot. Implementation of the Global Users provides no additional functionality since only the Server can successfull access the global accounts.

6. Release Notes

COE Kernel

1. Installation of the IRIX 6.2 Operating System is a *destructive installation* because installation removes any previously installed software. Your disk will be overwritten as part of the installation process and all data will be lost.
2. The C2 security level (auditing feature) is running automatically at installation time.
3. Multi-head and multi-eye configurations are not supported.
4. Classifications cannot be assigned to profiles.
5. In the Export/Unexport File System window, selecting `ro=client` or `rw=client` from the Options pop-up menu does not properly set permissions; therefore, the user must manually type in the Options field any permission specific to a client. Workaround: The user must manually enter `rw=[workstation name]` or `ro=[workstation name]` in the Options field of the Export/Unexport File System window in order to use that permission. Note: If DNS is configured, then the domain suffix must be appended to the workstation name.

COEInstaller Tool

1. The `AcctGrp` descriptor supports only one entry.
2. The default tape drive for IRIX 6.2 is `/dev/nrtape`.
3. The `Installation Log` only logs segment processing for the last segment(s) selected from the current installation.
4. No help options are available.
5. Disk space is not checked on `/h/data/global` when installing a global data segment.
6. NIS and Domain Name Service (DNS) servers are not updated when processing the `Network` descriptor.
7. The `$HOME_DIR` keyword in the `Requires` descriptor is not processed.
8. In order for network installation to work, the `/h/data/global` directory must be mounted from a machine that has been designated as the network installation master. If the `/h/data/global` directory is not mounted, then the `Disk Manager` must be used to export it from the machine that has been designated the master to the machine that needs to mount it. In addition, the machine that the segments are being installed from must be in the target machine's local host file or, if the machine is running DNS, the machine must be in the DNS file.
9. The `Network Installation Server` does not automatically export the disk partition that is loaded with segments. This partition must be exported explicitly using the `Disk Manager`. If the machine is the network installation master and also has segments loaded on it under the partition that contains `/h`, then this partition should be exported without exporting `/h/data/global`.
10. If the `Update Security Database` window appears during installation, the operator must close the window manually in order for the installation to continue.

COEAskUser, COEInstError, COEMsg, COEPrompt, and COEPromptPasswd

1. The `COEAskUser`, `COEInstError`, `COEMsg`, `COEPrompt`, and `COEPromptPasswd` tools support multi-line text. The following example uses the `COEMsg` tool to show how to display text over multiple lines:

```
COEMsg "this is line 1 \  
This is line 2 \  
This is the 3rd line"
```

- The COEInstError process presently does not stop the processing of an installation. It will display an installation error message and return a -1 status code to the calling process. The calling process (i.e., PostInstall) must perform any cleanup to return a failed error status to the COEInstaller, which can then stop the installation.

COEUpdateHome Tool

- COEUpdateHome must be run from within the directory of the script that the user is trying to update (typically the segment directory).

7. Patch List

Patch Name	Synopsis
SG0001270	RQS (requickstart) can damage C++ libraries
SG0001284	Tape patch adding LEOT/PEOT handing end DLT2x00XT, 4x00 and 7x00 support to 6.2
SG0001397	sash patch for 6.2 XFS changes
SG0001403	IRIX 6.2 Posix 1003.1b Development
SG0001417	Security fix for sysmon/sgihelp for 6.2
SG0001482	IRIX 6.2 IDE Patch
SG0001485	IRIX 6.2 Networking Commands Patch
SG0001499	Mount command fixes for 6.2
SG0001510	Add VME Fast Ethernet (VFE) and GIO Fast Ethernet (GFE)
SG0001516	Desktop security patch
SG0001598	Searchbook and iconbook file permissions security patch in IRIX 6.2
SG0001615	NFS over TCP server support
SG0001639	mail security fix (for 6.2)
SG0001644	Pthread library fixes roll-up
SG0001686	netprint security patch for IRIX 6.2
SG0001703	IRIX 6.2 networking Kernel Rollup #3
SG0001717	All platform kernel roll-up patch
SG0001723	IRIX 6.2 STREAMS rollup patch #3
SG0001746	XInternAtom fix for the Irix 6.2 N32 version of libX11.so
SG0001760	tcsh fix for POSIX setpgrp() introduced in OS rollup patch 3 starting with 1488
SG0001768	XFS rollup #7 for IRIX 6.2

Patch Name	Synopsis
SG0001861	X server patch for Irix 6.2, all platforms except infinite reality
SG0001918	Irix 6.2 libc roll-up
SG0001973	gmemusage security hole
SG0002000	Irix 6.2 POSIX 1003.1b support modules
SG0002044	rid rollup #7 for 6.2, 6.3, and 6.4: pthreads+security